

NAVY PROGRAMS

Amphibious Transport Dock Ship (LPD 17)

USS *San Antonio* (LPD 17) will be a diesel-powered amphibious assault ship that will transport and deploy the combat and support elements of Marine Expeditionary Units/Brigades as a key component of amphibious task forces. The LPD 17 is intended to debark forces by surface assault craft, including current and advanced amphibious assault vehicles (AAAV), air cushioned landing craft, conventional landing craft, as well as helicopters and MV-22s. A flight-deck will enable the aerial transport of troops and equipment, and a floodable well-deck will permit operation of air-cushioned landing craft, conventional landing craft, and amphibious assault vehicles. The LPD 17 class is required to conduct simultaneous day and night, well-deck and flight-deck operations, and is expected to have Command, Control, Communications, Computer, and Intelligence (C⁴I) capabilities sufficient to support Operational Maneuver from the Sea/Ship-to-Objective Maneuver.

Self-defense capabilities of the LPD 17 will include a cooperative engagement capability with other task force vessels, plus the Mk-2 variant of the ship self-defense system, rolling airframe missile (RAM), and the Nulka decoy system to provide own-ship defense against anti-ship cruise missiles (ASCMs). Defense against surface threats will be provided by two Mk-46 30-mm gun systems that are currently being developed separately by the Marine Corps for use on the AAAV. Installed C⁴I systems will interoperate through a modern ship wide area network. OSD approved the Test and Evaluation Master Plan (TEMP) in February 2000. This TEMP is currently being updated because of program baseline breaches. A revision, with Operational Test and Live Fire Test and Evaluation (LFT&E) updates, was expected in 1QFY02, but has not been submitted because of inadequate progress in resolving issues that primarily involve combat systems testing. A waiver from full-up, system-level testing had been granted and an alternative LFT&E plan was approved by OSD in June 1996.

The overall ship design and construction schedule was delayed 24 months due to delays in the ship design process and the shipbuilder's lack of readiness to begin construction.

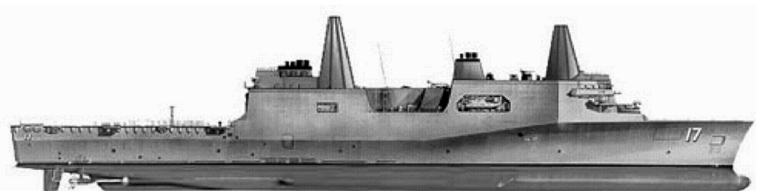
TEST & EVALUATION ACTIVITY

An Operational Assessment (OA)(Operational Test-IIB) began in FY02 and should be completed in FY04. The assessment consists largely of reviewing ship specifications and design drawings and evaluating them from the perspective of fleet experts on amphibious warfare. The assessment team is also evaluating the results of modeling and simulations that were conducted as part of the ship design process.

The Navy continued to perform component shock qualification tests. Preparations continued to conduct the Detail Design vulnerability assessment through the use of ship vulnerability models.

TEST & EVALUATION ASSESSMENT

OAs provided key insights into design deficiencies, which, in some cases, were identified as early as 1995 and rediscovered in subsequent OAs. Although the Navy Program Office, PMS 317, has corrected some deficiencies, some remain unresolved either because continued unbudgeted cost growth and schedule delay have made the Navy unwilling to pursue corrective actions or because the problem affects multiple ships, thereby making it difficult for any single program office to address. Shortfalls identified during OAs are discussed below.



Artist's conception of the new Amphibious Transport Dock Ship USS San Antonio (LPD 17). Twelve ships are planned to be built for this class. Operational assessments have provided key insights into design deficiencies.

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The LPD 17 air defense combat system's effectiveness depends on the successful integration of separate sensor, weapon, and control element programs and this task presents considerable risk. The only hard-kill system is RAM. RAM, along with soft-kill systems (Giant, Nulka, and chaff), must achieve the threshold requirement for ASCM defense. Defense against fighter/bomber-type aircraft is a concern as is the ship's capability to detect, track, and engage some classes of ASCM. Susceptibility to torpedo attack is a concern.

The most significant future T&E challenge for the LPD 17 will be assessing the ship's self-defense capability against ASCMs. Safe and effective testing requires use of a Self-Defense Test Ship (SDTS) capable of being remotely operated during operationally realistic ship air defense scenarios. Results of these tests will be used to determine operational effectiveness. Accredited modeling and simulation will be used to investigate excursions in scenarios beyond the conditions experienced in the SDTS testing. Consequently, the Navy must fund the installation of the LPD 17 combat system aboard the SDTS, the conduct of the operational testing with the SDTS, and development/validation of the M&S capability.

Shortcomings remain in the ship's C⁴I systems. The ship's radio communication system design does not support Internet protocol data connectivity over HF, VHF, and UHF (SATCOM) nets to shipboard landing force C⁴I systems. This digital connectivity deficiency compromises the capability to pass C2, logistic, intelligence, fire support, and planning information between forces ashore and command elements aboard ship.

Like the 1970s-era amphibious ships it will replace, the LPD 17 will not fully support simultaneous night and day, flight deck, and well-deck operations because of a lack of night vision device-compatible lighting and displays. Although PMS 317 is working with other Navy organizations to define and support a solution to this significant shortfall, observed progress to date makes it unlikely that a solution will be found and implemented on the ship.

The LPD 17 will have a collective protection system and a water wash-down system to mitigate the effect of a chemical/biological agent attack. However, the ship must interoperate with landing craft and vertical take-off and landing aircraft, which might be exposed to agents during the transit ashore or while loading/unloading ashore.

Aviation-related deficiencies include the lack of the Tactical Control System needed to launch, control, recover, and receive downlink information from Unmanned Aircraft Vehicles. There are also shortfalls in supporting organizational-level maintenance for Marine Corps VTOL aircraft (related to inadequate crane capability) and safety-affecting deficiencies in the design of the helicopter control station.

Unresolved shortcomings in LFT&E require further action. The Navy's approach for consideration of carried weapons and aircraft in the ship vulnerability assessment has not been established. The Navy has not determined the method to be used for demonstrating recoverability of primary mission capabilities after each of the Full Ship Shock Trials underwater shock events. Agreement has not been reached on the process for assessing LPD 17 vulnerability with respect to terrorist threats such as encountered in the *USS Cole* incident.